

Nurse Manager's Use of Lotus 1-2-3 Template as Support for Decision Making for Nursing Hours, Staffing and Direct Nursing Costs per Day.

**Richard D. Martorelli, M.B.A., C.P.A., Surgical Nursing,
University of Pennsylvania Medical Center, Philadelphia,
Pennsylvania.**

Delivery of appropriate levels of resource utilization is the key to controlling costs in today's health care settings. Nurse Managers have a strategic and pivotal role in patient care delivery and health-care organizations, and have become more accountable for managing patient care, personnel and costs in the face of fluctuating patient activity. The most frequently used statistic for the measurement of nursing care and personnel staffing is Nursing Hours Per Patient Day (NHPPD). The purpose of the development of a PC-based spreadsheet was to provide the nurse managers with an easy-to-use, interactive tool from which changes in resource needs could be quickly determined from changes in patient volume and activity.

With increasing demands on hospitals to lower health care costs, and increasing needs to understand and manage expenses in a managed care environment, nurse managers have become more accountable for managing patient care and determining appropriate staffing requirements in the face of fluctuating patient activity. Mainframe programs exist that link volume/patient activity with payroll/scheduling programs, but these are expensive to implement and support. These systems also tend to be retrospective, and unable to help support decision making in a rapidly changing environment. The purpose of the development of a PC-based spreadsheet was to provide the nurse managers with an easy-to-use, interactive tool from which changes in resource needs could be quickly determined from changes in patient volume and activity.

At a university teaching hospital, where personnel management represents 80% of the Nursing Department's operating budget, a spreadsheet template, based in Lotus 1-2-3, was developed and customized for operation on 23, (100%), of the inpatient units. Traditionally, decisions made by nurse managers about staffing were done in a nonuniform method, mostly by relying on personal experience and clinical judgement. If any quantitative calculations were performed manually by the individual managers, this

work could take up to an hour. The PC-based spreadsheet program requires minimal data input of daily patient census and staffing, and it calculates and displays the unit occupancy rate, the Direct Nursing Hours Per Patient Day (NHPPD), the direct nursing cost per patient day and the total direct nursing payroll per patient day. A comparison of the actual and budgeted patient activity and nursing costs is quantified and illustrated by graphic representation. Because of the software's capabilities, it is possible to obtain several iterations of patient staffing ratios in order to evaluate the one which best fits the budgetary constraints. Free text areas within the worksheet allow space for the nurse manager to enter unusual circumstances or special patient needs that may have affected the amount and cost of staffing. These notes can be stored and retrieved for later use in operational variance analysis. Because this PC-based commercial software program is easy to modify, changes in base-level assumptions, calculations or formatting can be accomplished with facility.

The nurse managers have used the spreadsheet on a daily basis for six months. As a result, the managers have 1) reduced the time for support of decision making from up to one hour to less than ten minutes; 2) applied consistent decision rules compatible with personnel resources; 3) increased flexibility in managing staffing assignments based on patient census and demand through the ability to easily identify resource changes required for different levels of activity. In addition, the storage of contemporaneous notes regarding resource use has enhanced the formal financial variance analysis process, by providing the manager with detailed information regarding peak activity periods that may not be obvious in monthly summary reports. Annual refinements of the basic spreadsheet, based on user comments, are planned, and development of an integrated summary report of period information is currently underway.